Supporting Documentation for Fire Containment, IFT-contain (based on the CONTAIN module in BehavePlus)

Name of Software Tool: IFT-contain

Current Version Description/Date: IFT-contain version 01-31-12

Software Code and History: The mathematical code for IFT-contain is from the Fire Behavior Software Developer Kit (FBSDK) and the BehavePlus5 xfblib.cpp and xfblib.h. IFT-contain (01-31-12) implements all of the BehavePlus functionality found in the BehavePlus-CONTAIN module, except for the multiple resources input option. Details comparing the functionality of BehavePlus5 and equivalent tools in IFTDSS can be found in Drury et al. (2012, BehavePlus Functionality available in IFTDSS Version 1.0). Rigorous testing has been performed to verify that the mathematical output from the IFT-contain module is consistent with the output from the BehavePlus5-CONTAIN module. Details concerning the output evaluation between the BehavePlus-CONTAIN and IFT-contain modules can be found in the module test documents included in the IFTDSS online help (under **IFTDSS Compared with Other Systems > Module Test Cases**). Future versions of IFTDSS are scheduled to expand the BehavePlus functionality.

Software Developer(s) Names, Organization, and Contact Information:

- BehavePlus was developed by U.S. Forest Service, Rocky Mountain Research Station, Fire, Fuel, and Smoke Science Program. Contact information is available on: http://www.firemodels.org/index.php/behaveplus-support/behaveplus-contact-us
- IFT-contain was developed by the IFTDSS Development Team based on software libraries provided by the BehavePlus developers. The IFTDSS Development Team may be contacted using the Feedback function available on every page of IFTDSS.

Science Model Contact, Names, Organization, and Contact Information:

- Contact information for implementation of the CONTAIN module in BehavePlus or the underlying scientific algorithms is available on: http://www.firemodels.org/index.php/behaveplus-support/behaveplus-contact-us
- For questions regarding IFT-contain, please contact the IFTDSS Team using the Feedback Function available on every page of IFTDSS.

Availability of the Version of Record: The latest version of the software code for IFT-contain resides with Sonoma Technology, Inc. (STI) and is being used in IFTDSS version 1.0. However, STI did not develop the scientific algorithms within the software code. The IFT-contain software module code is public domain and available from STI upon written request.

Primary Funding Sources:

- BehavePlus development and support has been funded by U.S. Forest Service, Rocky Mountain Research Station, Fire, Fuel, and Smoke Science Program; U.S. Forest Service, Fire and Aviation Management; the Joint Fire Science Program (JFSP).
- IFT-contain development was funded by JFSP.

Application Purpose (General): The IFT-contain module is used to estimate the fire suppression resources necessary for containment of a fire growing from a point source. In order to run this module, fire size, rate of spread, and resource information are needed. Output parameters include the final status of the initial attack effort (contained, withdrawn, escaped), the size of the fire enclosed by the containment line, the total length of fireline constructed by all resources at the time the fire was contained or determined to have escaped, and the number and cost of resources used to contain the fire. The IFT-contain module can be used to estimate fire suppression resources needed for Element 16 and 17 (Holding and Contingency plans) of a burn plan.

Application Purpose (Fuel Treatment): The IFT-contain module can be used for prescribed burn planning and the output from this module can be used to fill in specified elements of a burn plan.

User/Application Documentation:

- Documentation of BehavePlus operation and application:
  http://www.firemodels.org/index.php/national-systems/behaveplus

User Application Guidance:

- This PDF tutorial illustrates how to use IFTDSS to prepare a burn plan:
  Preparing a Prescribed Burn Plan

Scientific Foundations of the Software Tool:

- Degree of validation/evaluation and availability of written results:
  No information available at this time.
- Publications describing BehavePlus and the fire models on which it is based:
  http://www.firemodels.org/index.php/behaveplus-introduction/behaveplus-publications

Training Availability:

- Training on BehavePlus can be found at:
  http://www.firemodels.org/index.php/behaveplus-support/behaveplus-training